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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,327	03/19/2004	Richard A. Schroeder	12406-003	7001

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EXAMINER

DETSCHEL, MARISSA

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 06/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/804,327

Applicant(s)

SCHROEDER ET AL.

Examiner

Marissa J. Detschel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11, and 13-20 is/are rejected.
- 7) ☒ Claim(s) 5 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/16/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed on August 16, 2004, has been fully considered by the Examiner.

### ***Claim Objections***

Claims 4, 11, 13, and 20 is objected to because of the following informalities:

As to claims 4, 11, and 20, these claims include the limitation of means for securing to two components to be measured. It is understood from the specification by the Examiner that these means are located at the ends of the sensor. However, the claim limitation does not express this limitation, leaving the claim open-ended. Examiner suggests changing the limitation to include that the means for securing are located at the end of the sensor. For example, Claim 4 would become "The linear displacement sensor of claim 1 wherein the first and second ends of said housing include means for securing to two components to be measured."

Claim 13 reads "The linear displacement sensor of claim 8 further including a second plate defining a second aperture." Examiner believes this should read "The linear displacement sensor of claim 8 further including a second disk defining a second aperture" since a disk is used in claim 8, which claim 13 depends from, as opposed to a plate.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

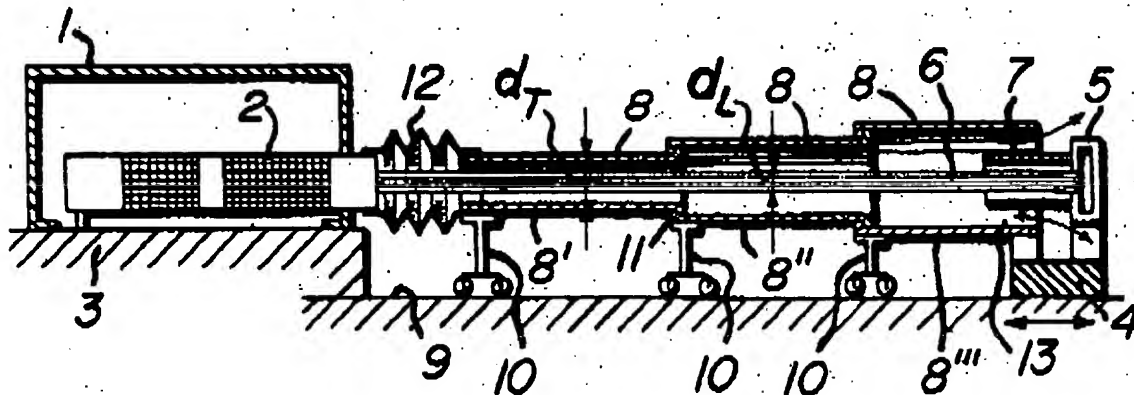
Claims 1-4, 6-11, 13-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bory (USPN 3,857,638) in view of McNeirney et al. (USPN 6,096,049).

Regarding claims 1, 8, and 15, Bory discloses a linear displacement sensor comprising, in combination,

a first end (1,2,3) having a source of radiation (2),

a second end (4,5) having a receiver (5) sensitive to such radiation,

a telescoping housing (8) extending between said first end and said second end, said housing having at least a first larger section and a second, smaller section disposed within said first section (See figure below and column 1, line 61 to column 2, line 31), wherein the sections are slidably disposed within each other (via 10).



Bory's device regulates the position of a machine component with the aid of a light beam (Abstract). By regulating the position of a machine component, the device is also measuring a displacement since regulating the position of any component utilizes a detection of any displacements of the component.

Bory does not disclose a disk or a plate disposed within the housing of the sensor and defining an aperture, whereby said aperture transmits direct radiation and reduces transmission of incident radiation. McNeirney (USPN 6,096,049) discloses the use of a light guiding device in the form of a disk or plate with an aperture that transmits direct radiation and blocks unwanted beams of radiation in an instrument that is adapted for alignment between a light beam propagating through an instrument and the instrument itself. (column 4, line 39 to column 5, line 42) McNeirney's device is providing a linear displacement measurement between the light beam and the instrument. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the light guiding device of McNeirney in the sensor housing of Bory to block unwanted light beams in order to provide a more accurate measurement of the light as it propagates through the device and reaches the detector, indicating a linear displacement measurement.

In regards to claims 2 and 9, the housing of Bory has three sections (See 8', 8'', and 8''' in the figure above).

In regards to claims 3, 10, and 19, the housing of Bory does not have five sections illustrated in the figure above, but rather only illustrates three. It would have been obvious to one of ordinary skill in the art at the time of the invention to create two

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more sections, resulting in five total sections in the housing of the device of Bory, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

In regards to claims 4, 11, and 20, the housing of Bory includes means for securing to two components to be measured (column 1, line 61 to column 2, line 2).

Regarding claims 6, 7, 13, 14, and 18, Bory does not disclose the use of a second plate defining a second aperture wherein said apertures have distinct diameters that are approximately equal to the beam of radiation used. McNeirney discloses that a series of light guiding devices can be disposed throughout the housing of a device for providing a linear displacement measurement between the light beam and the instrument, allowing for more than one to be used. They have distinct diameters so they can block the unwanted light beams and allow the aligned light beam to propagate through. (column 4, line 39 to column 5, line 42) It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the light guiding device of McNeirney in the sensor housing of Bory to block unwanted light beams in order to provide a more accurate measurement of the light as it propagates through the device and reaches the detector, indicating a linear displacement measurement.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bory (USPN 3,857,638) in view of McNeirney et al. (USPN 6,096,049) as applied to claim 15 above, and further in view of Magnussen (USPN 6,522,415).

In regards to claims 16 and 17, the radiation source of Bory in view of McNeirney is not a light emitting diode and the radiation receiver of Bory in view of McNeirney is

not a phototransistor. The use of this combination of a light emitting diode and phototransistor in a device for determining a relative position of one object with respect to another (i.e. measuring a displacement) is used in the device of Magnussen. Magnussen discloses that by using a light emitting diode element and a phototransistor, production costs are minimized. (column 4, lines 4-11) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the combination of the light emitting diode and the phototransistor of Magnussen in the device of Bory in view of McNeirney since the use of such a combination reduces production costs.

#### ***Allowable Subject Matter***

Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: As to claims 5 and 12, the prior art of record, taken alone or in combination fails to disclose or render obvious the use of a ball joint at the ends of a sensor to secure a linear displacement sensor to two components to be measured, in combination with the rest of the limitations of claims 5 and 12.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa J. Detschel whose telephone number is 571-272-2716. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571-272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marissa J Detschel  
June 2, 2006  
MJD



LAYLA G. LAUCHMAN  
PRIMARY EXAMINER